ZTE MF612 3G Wireless Router User Manual

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ZTE MF612
3G Wireless Router
User Manual

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WELCOME

Thank you for choosing the ZTE MF612 3G Wireless Router (hereinafter referred to as “unit” or “router”). To get the most from your router and to keep it in the best condition please read this manual carefully.

The pictures, symbols and contents in this manual are for reference only. They might not be completely identical with your router. ZTE operates a policy of continuous development. We reserve the right to update the technical specifications in this document at any time without prior notice.

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Glossary

- AC: Alternating Current
- APN: Access Point Name
- DC: Direct Current
- DHCP: Dynamic Host Control Protocol
- DNS: Domain Name System (or Service or Server)
- DoS: Denial of Service
- EDGE: Enhanced Data GSM Evolution
- ESSID: Expanded Service Set Identifier
- Ethernet: A frame-based computer networking technology for local area networks (LANs)
- GSM: Global System for Mobile Communications
- GPRS: General Packet Radio Service
- HSDPA: High Speed Downlink Packet Access
- HSUPA: High Speed Uplink Packet Access
- IP: Internet Protocol
- LAN: Local Area Network
- LED: Light - emitting Diode
- MHz: Megahertz
- MTU: Maximum Transmission Unit
- PDP: Packet Data Protocol
- PIN: Personal Identification Number
- PPP: Point to Point Protocol
- PSTN: Public Switched Telephony Network
- PUK: PIN Unlocking Key
- RSSI: Radio Signal Strength Indicator
- RF: Radio Frequency
- SIP: Session Initiated Protocol
- UPnP: Universal Plug and Play

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- (U)SIM: Subscriber Identification Module
- VOIP: Voice over Internet Protocol
- WCDMA: Wideband CDMA (Code-Division Multiple Access)
- WEP: Wired Equivalent Privacy
- WLAN: Wireless LAN
- WPA-PSK: Wi-Fi Protected Access–PreShared Key

This Manual: http://www.manuallib.com/file/2622439

Content

1 General Information 7
1.1 Safety Precautions 7
1.2 Declaration 7
1.3 Cleaning and Maintaining 8
1.4 Limited Warranty 9
1.5 Limitation of Liability 9
1.6 Emergency Call 10
2 Getting started 11
2.1 Parts Supplied 11
2.2 Router Appearance 11
2.2.1 LED Indicator 11
2.2.2 Power Switch 12
2.3 Interface and Installation 13
2.3.1 Interface Description 13
2.3.2 Installation 13
2.4 Power Supply 15
2.5 About the (U)SIM Card 15
3 Voice 16
3.1 Making a Call 16
3.1.1 Making a Trunk Call 16
3.1.2 Making an International Call 16
3.2 Answering a Call 16
4 Internet Access 17
4.1 Preparation 17
4.2 Settings 17
4.2.1 Login 17
4.2.2 WAN Connection 21
4.2.3 3G Settings 22
4.2.4 Router 24
4.2.5 Wi-Fi Setting 25
4.2.6 Firewall 33

This Manual: http://www.manuallib.com/file/2622439

4.2.7 Advanced 37
4.3 Logout 40
4.4 Disconnecting from the Internet 40
5 Troubleshooting 41
6 Technical Parameters 43

This Manual: http://www.manuallib.com/file/2622439

1 General Information

1.1 Safety Precautions

- Some electronic devices may be susceptible to electromagnetic interference. Locate the router away from TV set, radio and other electronic equipment to avoid electromagnetic interference.
- The router may interfere with medical devices like hearing aides and pacemakers. Consult a physician or the manufacturer of the medical device before using the router.
- Please keep yourself at least 20 centimeters away from router.
- Do not use your router in dangerous environments such as oil terminals or chemical factories where there are explosive gases or explosive products being processed.
- Please use original accessories or accessories that are authorized by ZTE. Unauthorized accessories may affect the router performance, damage the router or cause danger to you.
- Do not attempt to dismantle the router. There are no user serviceable parts.
- Do not allow the router or accessories to come into contact with liquid or moisture at any time. Do not immerse the router in any liquid.
- Do not place objects on top of the router. This may lead to overheating of the device.
- The device must be placed in ventilation environment for use.
- Do not expose the router to direct sunlight or store it in hot areas. High temperature can shorten the life of electronic devices.
- Do not allow children to play with the router or charger.
- Keep the length of the cable between the router and the phone less than 10 meters.
- The router is for indoor use only. Do not use the router outside. Do not connect telephone extensions which run outside of the building. These can result in lightning damage to your unit.

1.2 Declaration

We, ZTE Corporation, declared that:

- The user is cautioned that changes or modifications not expressly

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approved by the manufacturer could void the user's authority to operate the equipment.

- This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/ TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1.3 Cleaning and Maintaining

- Use an antistatic cloth to clean the router. Do not use chemical or abrasive cleanser as these could damage the plastic case. Turn off your router before you clean it.
- Use the router within the temperature range of -10˚C ~ +55˚C, and the storage temperature range is -20˚C ~ +65˚C. The humidity range is 5%~95%.

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- Do not use your router during a thunderstorm. Remove the mains power pack from the wall socket.
- Do not take out your (U)SIM card unnecessarily. The (U)SIM card may be easily lost or it can be damaged by static electricity.

1.4 Limited Warranty

- This warranty does not apply to defects or errors in the Product caused by:

(a) Reasonable Router Appearance Disfiguration.

(b) End User's failure to follow ZTE's installation, operation or maintenance instructions or procedures.

(c) End User's mishandling, misuse, negligence, or improper installation, disassemble, storage, servicing or operation of the Product.

(d) Modifications or repairs not made by ZTE or a ZTE-certified individual.

(e) Power failures, surges, fire, flood, accident, actions of third parties or other events outside ZTE's reasonable control.

(f) Usage of products of third Parties, or usage in conjunction with third party products provided that such defects is due to the combined usage.

(g) Any other cause beyond the range of normal usage for Products. End User shall have no right to reject, return, or receive a refund for any Product from ZTE under the above-mentioned situations.

- This warranty is end user's sole remedy and ZTE's sole liability for defective or nonconforming items, and is in lieu of all other warranties, expressed, implied or statutory, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, unless otherwise required under the mandatory provisions of the law.

1.5 Limitation of Liability

ZTE shall not be liable for any loss of profits or indirect, special, incidental or consequential damages resulting from or arising out of or in connection with using of this product, whether or not ZTE had been advised, knew or should have known of the possibility of such damages, including, but not limited to lost profits, interruption of business, cost of capital,

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cost of substitute facilities or product, or any downtime cost.

1.6 Emergency Call

Do not rely on the 3G Wireless Router to provide emergency call in all situations.

Your 3G Wireless Router only supports emergency dialing when there is power and connection to the mobile network. If the power fails, the router can not work. If you have no network coverage you will not be able to make emergency calls. The 3G Wireless Router does not include a lifeline facility (wired access to the PSTN).

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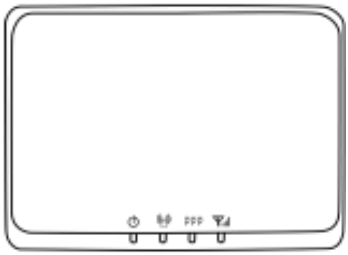
2 Getting started

The router operates on the HSUPA/HSDPA/UMTS network and GSM/ GPRS/ EDGE network and supports voice and data service.

2.1 Parts Supplied

Parts	Quantity
3G Wireless Router	1
External power adapter	1
User manual	1
Certificate of quality	1

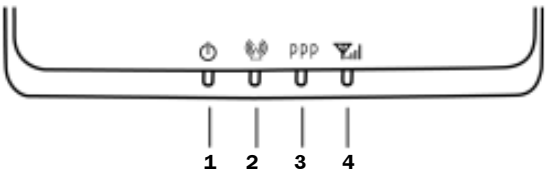
2.2 Router Appearance



Top View

Left View

2.2.1 LED Indicator



LED Indicators

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Indicator	State	Description
1. PWR	ON	External power supply works normally.
	OFF	External power supply is disconnected or power off.
2. Wi-Fi	ON	Wi-Fi works normally.
	Blinking	Data transmission.
	OFF	Wi-Fi works abnormally.
3. PPP	ON	Internet connected.
	Blinking	The router attempts to connect Internet.
	OFF	Internet disconnected and not attempt to connect.
4. RSSI	ON	RF signal is normal. Different color indicates different network. Red: GSM/GPRS/EDGE. Green: HSDPA/HSUPA/UMTS.
	Blinking	RF signal is poor.
	OFF	RF signal is not available.

Note: The indicators (including PPP and RSSI) are all blinking in green when:

- The (U)SIM card has not been installed.
- The PIN code or PUK code is required.
- The router can not work normally.

2.2.2 Power Switch

Turn the router **On** or **Off** by pressing the power switch at the rear of the router.

Power Switch

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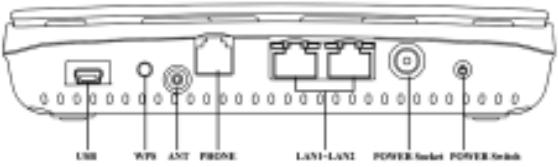
2.3 Interface and Installation

2.3.1 Interface Description



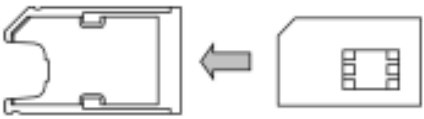
Rear View of Router

(1) **USB**: Test and diagnostic interface for factory use only.
(2) **WPS**:WPS button is used to start Wi-Fi Protected Setup authentication process.
(3) **ANT**: External antenna connector. If external antenna is connected, the internal antenna is of no effect.
(4) **PHONE**: Standard RJ11 connector for Telephone.
(5) **LAN 1~ LAN 2**: Ethernet connections to computer.
(6) **POWER Socket**: Connection to the external power supply.
(7) **POWER Switch**: Turn the router ON or OFF.

2.3.2 Installation

1. Insert the (U)SIM card into the (U)SIM card holder from the side of the router.

a) Pull the plastic holder out.
b) Insert the (U)SIM card with the metal contact area facing upwards into the holder.



c) Insert the plastic holder into the router. You can hear a click when the (U)SIM card locks in place.

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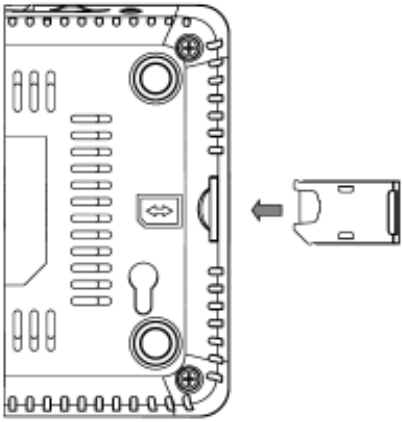

Warning: Please power off the router and remove the external power adapter before removing or inserting the (U)SIM card, if not, the router or (U)SIM card may be damaged.

2. Connect the telephone to the **PHONE** interface using phone cable (RJ11).
3. Connect your computer to the **LAN** interface using the Ethernet cable (RJ45).

Note: The router will adapt the Ethernet cable style (crossover or straight) automatically.

4. Connect the external power adaptor to a standard power outlet. Insert the plug into the socket at the rear of the router.
5. Turn the power switch ⏻ on to get started. Make sure that the phone is on hook before power on.

Note: Do not put anything on the top of router. Do not lay routers to overlap each other when using.

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6. Wait 1~2 minutes after turning the router on before you use the service. The RSSI & PWR indicator should be lit on.

Note: When the router is turned off, an incoming caller will hear the prompt like “The number you have dialed is currently unavailable.’’

If the RSSI (Radio Signal Strength Indicator) LED is blinking constantly then try moving the router to another location. The router takes 1~2 minutes to initialize, attach to the network and obtain an IP address.

2.4 Power Supply

For normal operation connect the router to the external power adapter. In case of power failure or when there is no available external power supply, the router can not work.

2.5 About the (U)SIM Card

Avoid handling the (U)SIM card unnecessarily. Hold the card by the edges to prevent static damage. Keep the (U)SIM card away from electrical and magnetic appliances.

If you cannot get service, make sure that:

You are in an area which has network coverage.

You are using the correct (U)SIM card.

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3 Voice

3.1 Making a Call

Before making a call, make sure:

- The (U)SIM card is installed.
- The telephone cable (RJ11) is connected properly.
- The PWR light is on.
- The RSSI light is on.

Pick up the handset.

1. Key in the telephone number.
2. You can either press **#** key on the telephone to send the call, or wait 4~8 seconds for the call to be connected automatically.
3. Call will be connected.

Note: If there is no RSSI indication, the RF signal is unavailable. Change the location of the router and make sure nothing is blocking it.

3.1.1 Making a Trunk Call

If you are making a trunk call, add the area code as normal.

E.g. 03 9612 3456

3.1.2 Making an International Call

If you are making an international call, key in the international access code followed by the country code, area code and number.

E.g. 00 11 64 12 345678

3.2 Answering a Call

When the phone rings, pick up the handset to answer it. If the telephone has hands-free function you can answer the call by pressing the **Hands-free** button. Press the **Hands-free** button again to end the call.

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4 Internet Access

The router does not require any drivers, and it supports all operating systems with Ethernet LAN capability, such as Windows 2000, XP, Vista, MAC OS X and Linux. The router supports two computers surfing on internet using Ethernet cable at the same time, and also supports Wireless LAN connection.

Note: All the parameter settings in this chapter are just for your reference. Please contact your service provider for detail.

4.1 Preparation

Before using the data service, make sure:

- The (U)SIM card is installed.
- The Ethernet cable is connected properly.
- The PWR light is on.
- The RSSI light is on.
- The PPP light is on.

Web browser requirement:

It is suggested that you use one of these web browsers to connect to the internet.

- IE 6.0 or above
- Firefox 2.0
- Netscape version 9.0

4.2 Settings

Do not change any settings unless instructed by your service provider. To make changes to your settings you need to disconnect the router from the network. After making changes reboot your router by turn off and on again.

4.2.1 Login

The router can be connected by RJ45 or by Wi-Fi (the SSID is “ZTE Wireless Network”). By either connection mode, you should set to obtain an IP address automatically in the attribution setting of Internet protocol(TCP/IP).

After your computer gets the IP address (like 192.168.0.101) from the router, open a web browser and type “ http://192.168.0.1” in the address bar, and then input the username and password.

This Manual: http://www.manuallib.com/file/2622439

User name: admin
Password: admin

Click **Login** to log in the router.

Note: If you check **Save** after you give user name and password ,the router will save them, next time when you want to log in the router with the same user name and password, what you need to do is click **Login**.

When you successfully login, the **Quick Setup** procedure is shown in the following figure:

This Manual: http://www.manuallib.com/file/2622439

Quick setup guide you how to set the basic parameters for your router in the most safe way. Click **Next** to go to **PPP Profile Configuration** in the following figure:

Quick Setup---->PPP Profile Configuration
•Profile Name: The default profile that you used currently.
•APN: If a fixed APN(Access Point Name) is given by your ISP, select "Manual APN", otherwise, select "Auto APN", the gateway automatically obtains it.
•Dial No.:This parameter are provided by your ISP, Dial No. is used for data service connections;
Profile
Profile Name
APN
APN Setting
Auto APN
Manual APN
APN
Dial Setting
Dial No.
Back
Next

Set **APN** for PPP profile, if you obtain a fixed APN from your service provider, please select **Manual APN**, otherwise select **Auto APN,** and then type the APN string. **Dial No.** is provided by your service provider. Click **Next** to go to the **PPP Authentication** in the following figure:

Quick Setup---->PPP Authentication
•PPP Authentication
The authentication mode is provided by your Internet Service Provider(ISP).
Password Authentication Protocol(PAP): It provides a simple method without encryption for the peer to establish its identity using a 2-way handshake.
Challenge-Handshake Authentication Protocol(CHAP): It is used to periodically verify the identity of the peer
PPP User Name and PPP Password are provided by your ISP and used to obtain authentication from the ISP when the connection is established.
PPP Authentication
Authentication
CHAP
PAP
PPP User Name
PPP Password
Back
Next

This Manual: http://www.manuallib.com/file/2622439

Choose PPP authentication mode ,CHAP or PAP, and then give PPP user name and password to the corresponding authentication mode. Click **Next** to go to **SSID Configuration** in the following figure:

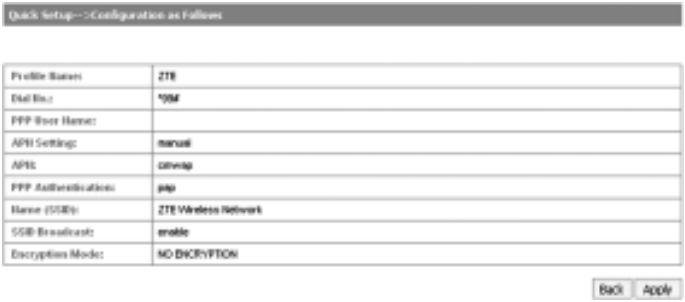
Quick Setup-->SSID Configuration
•Name SSID(Service Set Identifier): Enter a character string up to 32 characters as the name for your wireless local area network (WLAN).
•SSID Broadcast
Enabled: The gateway broadcasts the SSID and other devices can detect and connect to it.
Disabled: The gateway disables broadcasting and hides the name of your network.
SSID
Name(SSID)
ZTE Wireless Network
SSID Broadcast
SSID Broadcast
Enabled
Back
Next

Service Set Identifier(SSID) is used to uniquely identify your WLAN. If you enable **SSID Broadcast**, the gateway will broadcast the SSID, and other device can detect and connect with it. Click **Next** to go to **Security Configuration** in the following figure:

Quick Setup-->Security Configuration
•Add encryption to your wireless network to prevent unauthorised traffic monitoring and access.
No Encryption: Your wireless network is open to everyone without authentication and encryption, and this option is not recommended.
Wireless Equivalent Privacy(WEP): It is a 64-bit or 128-bit encryption method with user configurable fixed keys.
Wi-Fi Protected Access(WPA): It is a 256-bit encryption method with keys changing automatically.
WPA2: It is the securer version of WPA with implementation of the 802.11i standard.
WPA Encryption Algorithm: TKIP, AES, TKIP+AES.
WPA Pre-Shared Key: Enter the Pre-Shared key as a plain text(ASCII) pass-phrase of at least 8 characters.
Key Rotation Interval: Specify the key update interval in seconds. Enter 0 to disable the update function.
Network Key: Enter 5 ASCII characters or 10 hexadecimal digits for a 64-bit key, enter 13 ASCII characters or 26 hexadecimal digits for a 128-bit key.
Encryption Mode
Encryption Mode
NO ENCRYPTION
Back
Next

Encryption will keep your traffic from being unauthorized monitor and access, select one encryption mode from the list, and then set key and/or algorithm for it. Click **Next** to go to **Configuration as Follows** in the figure below:

This Manual: http://www.manuallib.com/file/2622439



Make sure that all the parameters shown in the figure are correct, and then click **Apply**.

4.2.2 WAN Connection

Click **WAN Connection**, you can configure how to connect to the Internet in the following figure:

There are three connection mode:

1. **Auto Connect**: The router will automatically connect to WAN when it is powered on.
2. **On Demand Connect**: .The connection will be established when data transmission are required. Router will disconnect from the Internet if there is no data traffic going through it during the **Max Idle Time**.
3. **Manual Connect**: Connect to Internet manually.

Click **Apply** to confirm your configuration, and then the PPP connection status will be shown in the figure.

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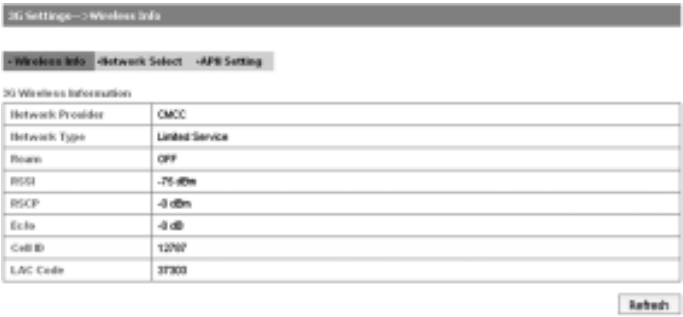
4.2.3 3G Settings

1. Wireless Info

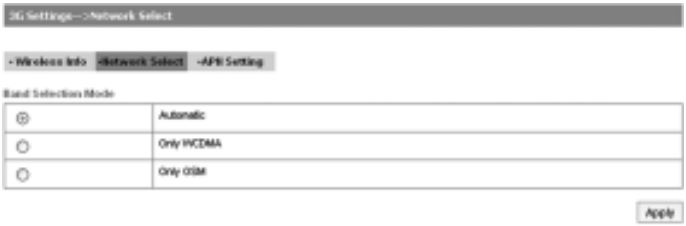
Select **3G Settings→Wireless Info**, the 3G wireless information is shown in the following figure:



Click **Refresh** to update the wireless information.

2. Network Select

Select **3G Settings→Network Select**, the Band Selection Mode is shown in the following figure:



- **Automatic**: Router searches for valid network according to the wireless network.
- **Only WCDMA**: Router searches for WCDMA network only.
- **Only GSM**: Router searches for GSM network only.

Click **Apply** to confirm your configuration.

3. APN Setting

Select **3G Settings→APN Setting**, the APN parameters are shown in the following figure:

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- **APN Setting**: APN address mode. If a fixed APN is provided by your service provider, select **Manual APN**. Otherwise select the **Auto APN**, and the router will automatically obtain this parameter.
- **APN**: APN string.
- **Dial No.**: This dial number is used for data service connection.
- **PDP Type**: Packet Data Protocol (PDP) Type IP is recommended unless service provider instruct others.
- **PDP Setting**: PDP address mode. If a fixed IP address is given by your service provider, select **Manual PDP**. Otherwise select the **Auto PDP** and the router will automatically obtain this parameter.
- **DNS**: If a fixed IP address is given by your service provider, then choose **Manual DNS. otherwise ,choose Auto DNS** ,and router will automatically obtain parameters.
- **Authentication**: Password Authentication Protocol (PAP) provides a simple method without encryption for the peer to establish its identity using a 2-way handshake. Challenge-Handshake Authentication Protocol (CHAP) is used to periodically verify the identity of the peer using a 3-way handshake.
- **User Name**: User name is used to obtain authentication from the ISP

This Manual: http://www.manuallib.com/file/2622439

when the connection is established

- **Password**: Password is used to obtain authentication from the ISP when the connection is established.

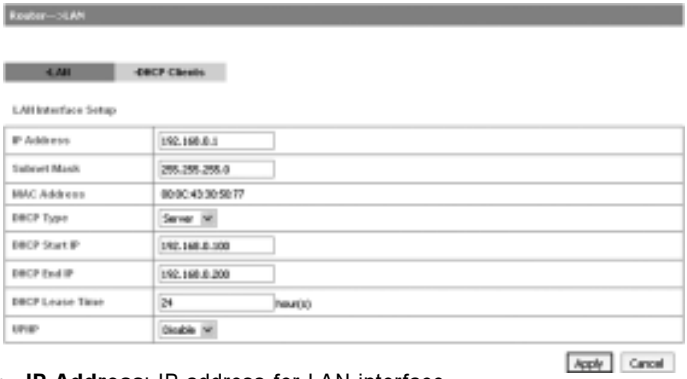
Click **Add** to define a new APN profile, and then click **Save** to save the profile. Click **Set default** to set the parameters to their default value. Select one profile and click **Delete** to delete it.

Note:You can not edit or delete the current default APN profile.

4.2.4 Router

1. LAN

Select **Router→LAN**, the LAN parameters are shown in the following figure:



- **IP Address**: IP address for LAN interface.
- **Subnet Mask**: Subnet mask for the IP address.
- **MAC Address**: MAC address for the LAN interface.
- **DHCP Type**: Define the DHCP type. By default, router is set as DHCP server.
- **DHCP Start IP**: Allocate start IP address for IP pool.
- **DHCP End IP**: Allocate end IP address for IP pool. The DHCP End IP address should be larger than the DHCP Start IP address.
- **DHCP Lease Time**: Define how long the leased IP address will be expired, and will relocate new IP address.
- **UPNP**: Enable Universal Plug and Play(UPNP) or not.

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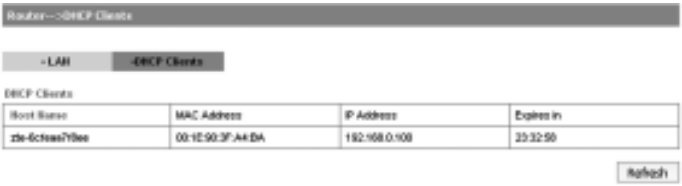
Click **Apply** to confirm your configuration.

2. DHCP Clients

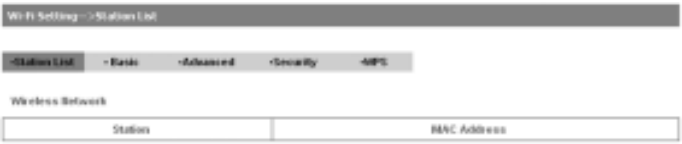
Select **Router→DHCP Clients**, the DHCP clients parameters are shown in the following figure:



4.2.5 Wi-Fi Setting

1. Station list

Select **Wi-Fi Setting→Station List**, the wireless network stations are shown in the following figure:



2. Basic

Select **Wi-Fi Setting→Basic**, the wireless network basic parameters are shown in the following figure:

This Manual: http://www.manuallib.com/file/2622439

- **Wi-Fi On/Off**: **Enable Wi-Fi or not**.
- **Network Mode**: If all of the wireless devices connect with this router in the same transmission mode, performance will be improved by choosing the appropriate wireless mode.
- **Network Name(SSID)**: Service Set Identifier(SSID). Enter a string less than 32 characters as the name for your wireless local area network(WLAN).
- **Broadcast Network Name(SSID)**: Disable or Enable(Default) this function. If **Enable** is selected, the router broadcasts the SSID, and other devices can detect and connect to it.
- **AP Isolation**: When **Enabled** is selected, each of your wireless client will not be able to communicate with each other.

This Manual: http://www.manuallib.com/file/2622439

- **BSSID**: MAC address of the Wi-Fi.
- **Frequency(Channel)**: Choose the appropriate channel to optimize the performance and coverage of your wireless network.
- **WDS Mode**: WDS enable router to communicate with other APs, WDS connection is two-way communication, APs should know each others wireless MAC address. And make sure that all APs share the same SSID and channel.
  WDS configuration is shown below:

Step	Description
1. Set the same SSID and channel for APs	Manually set the SSID and channel is strongly recommended
2. Select WDS mode: Disable, Lazy Mode, Bridge Mode or Repeater Mode	• If you select **Disable**, WDS is disabled. • If you select **Lazy Mode**, WDS is enabled, and set wireless MAC address only on the peer APs. • If you select **Bridge Mode,** WDS is enabled, and set the peer APs wireless MAC address on router. • If you select **Repeater Mode**, WDS is enabled, and set the peer APs wireless MAC address on router.
3. Select **Phy mode**: CCK, OFDM, HTMIX or GREENFIELD	-
4. Select **Encryp Type:** WEP, TKIP, AES	If you select **NONE**, all the data transmitted without encryption, and other station can access router.
5. Set peer AP's wireless MAC address on router	Only **Repeater Mode** and **Bridge Mode** need this.

This Manual: http://www.manuallib.com/file/2622439

The HT physical Mode parameters are shown below:

- **Operating Mode**: In **Mixed Mode**, packets are transmitted with a preamble compatible with the legacy 802.11a/g, the rest of the packet has a new format. In **Green Field**, high throughput packets are transmitted without a legacy compatible part.
- **Channel Bandwidth**: Set the HT physical channel bandwidth.
- **Guard Interval**: Guard interval is to introduce immunity to propagation delays, echoes and reflections, to which digital data is normally very sensitive.
- **MCS**: The Modulation and Coding Scheme (MCS) is a value that determines the modulation, coding and number of spatial channels.
- **Reverse Direction Grant(RDG)**:Enable **RDG** or not.
- **Extension Channel**: Set extension channel. Extension channel is also able to send and receive data.
- **Aggregation MSDU(A-MSDU)** :To enable Hyper Throughput TX Aggregate MAC Service Data Unit ,select **Enable.**
- **Auto Block ACK**: Select to block ACK (Acknowledge Number) or not during data transferring.
- **Decline BA Request**: Select to reject peer BA-Request or not.

Click **Apply** to confirm your configuration.

3. Advanced

Select **Wi-Fi Setting→Advanced**, the advanced wireless network parameters are shown in the following figure:

This Manual: http://www.manuallib.com/file/2622439

- **Beacon Interval**: The router broadcasts beacon message to announce that it has buffered frames to deliver. The default value is 100 (ms). Beacons are packets sent by an access point to synchronize a wireless network. Specify a beacon interval value. is recommended.
- **Data Beacon Rate(DTIM)** : A Delivery Traffic Indication Message(DTIM) informs next clients to listen to broadcast and multicast messages.
- **Fragment Threshold**: This value should remain at its default value of 2346. If you experience a high packet error rate, you may slightly increase your fragment threshold. Setting the fragment threshold too low may result in poor performance.
- **RTS Threshold**: Request To Send(RTS) threshold should be remained as the value of 2347. If you encounter inconsistent data flow, only minor modifications are recommended.
- **TX Power**: Transmit power should be remained as the value of 100.
- **Short Preamble**: The length of CRC block in the frames during the

This Manual: http://www.manuallib.com/file/2622439

wireless communication.

- **Shot Slot**: To indicate that 802.11g is using a shot time slot because there is no legacy station(802.11b) present.
- **Tx Burst**: Tx burst allows router to deliver better throughput in the same period and environment in order to increase speed.
- **Pkt_Aggregate:** Increase efficiency by aggregating multiple application packets data into a single transmission frame. In this way, 802.11n networks can send multiple data packets with the fixed overhead cost in just a single frame.
- **IEEE 802.11H Support**: Support IEEE 802.11H or not.

The Wi-Fi multimedia parameters are shown below:

- **WMM Capable**: When multimedia contents are transferred over wireless network, this function enhances data transfer performance.
- **APSD Capable**: Automatic Power Save Delivery(APSD), enable or disable data flow using APSD during transmitting for power saving.

Click **Apply** to confirm your configuration.

4. Security

Select **Wi-Fi Setting→Security**, the Security parameters are shown in the following figure:

Unless one of these encryption modes is selected, wireless transmissions to and from your wireless network can be easily intercepted and interpreted by unauthorized users.

The security modes are described below:

- **Open**: You can authenticate successfully with a SSID, whether it is

This Manual: http://www.manuallib.com/file/2622439

valid or empty.

- **Shared**: The WLAN clients who have the same WEP key with wireless gateway can pass the authentication and access the wireless network.
- **WEPAUTO**: Select WEP security automatically.
- **WPA-PSK**: WPA Pre-Shared Key, Enter the Pre-Shared key as a plain text (ASCII) pass-phrase of at least 8 characters.
- **WPA2-PSK**:It is the securer version of WPA with implementation of the 802.11i standard.
- **WPA-PSK/WPA2-PSK**:Apply both the WPA-PSK and WPA2-PSK scheme.

If the Authentication type is **Open**, **Shared**, **WEPAUTO,** the bottom part of the configuration page displays parameters as shown.

- **WEP Keys**: At most four keys can be set in the blank. Choose the primary key index. The primary key is the only key in use at a given time. Whatever keys you enter for an access point, you must also enter the same keys for the client adapter in the same order. In other words, WEP key 1 on the AP must match WEP key 1 on the client adapter, WEP key 2 on the AP must match WEP key 2 on the client adapter, etc. A WEP is either 10 or 26 hexadecimal digits (0~9,a~f and A~F)based on whether you select 64 bits 128 bits in the Encryption Strength drop-down list.

If the Authentication type is **WPA-PSK** , **WPA2-PSK** or **WPA-PSK/WPA2-PSK** , the bottom part of the configuration page displays WPA parameters.

- **WPA Algorithm**: **TKIP**, **AES** or **AUTO**.
- **Pass phrase**: You can input hexadecimal digits up to 64 characters or input ASCII characters choose a length of 63 characters or less.
- **Key Renewal Interval**: Define how long the key should be renew.

You can set **Wireless MAC Filtering**:

- **Wireless Disable**: If disabled, MAC address is not used to control network access.
- **Wireless Allow**: Set the MAC address that is allowed to access network.
- **Wireless Reject**: Set the MAC address that is not allowed to access network.

Click **Apply** to confirm your configuration.

This Manual: http://www.manuallib.com/file/2622439

5. WPS

Select **Wi-Fi Setting→WPS**, the WPS configuration is shown in the following figure:

Select **Enable**, click **Apply**, the WPS settings are shown in the following figure:

This Manual: http://www.manuallib.com/file/2622439

WPS Summary, WPS Progress and WPS Status are all shown in the figure.

To set WPS, Select WPS mode, the two modes are described below:

- PIN

  There are two ways to use PIN mode, one is set PIN code on the client's wireless adapter(you can find the PIN code in **AP PIN** field of **WPS Summary**), the other way is set the client's PIN code in **Client PIN** field.

- PBC

  Press the WPS button of the router or select PBC, and then click **Apply**. Press WPS button on the client wireless adapter within two minutes, and the negotiation process will be established.

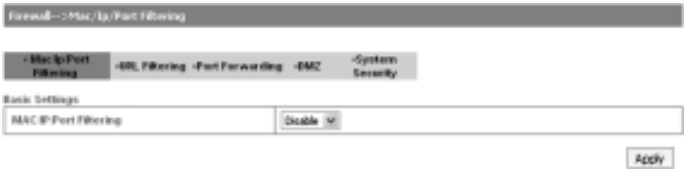
4.2.6 Firewall

You may setup firewall rules to protect your network from virus, worm and malicious activity on the Internet.

Note: You can set the maximum 10 filtering items for **MAC/IP/Port Filtering** and **URL Filtering**.

1. MAC/IP/Port Filtering

Select **Firewall→ Mac/Ip/Port Filtering**, the Mac/IP/Port Filtering is shown in the following figure:



If you select **Enable**, the filter settings will appear:

This Manual: http://www.manuallib.com/file/2622439

- **Default Policy**: Set how to handle the packet if none of the rules matches.
- **MAC address**: Set the MAC address that will be filtered.
- **Dest IP Address**: Set the destination IP address that will be filtered.
- **Source IP Address**: Set the source IP address that will be filtered.
- **Protocol**: Set which protocol will be used for filtering.
- **Dest Port Range**: Set the destination port numbers that will be filtered
- **Source Port Range**: Set the source port numbers that will be filtered.
- **Action**: Set how to handle the packet if it matches with the rule.
- **Comment**: type comment for the filter settings.

This Manual: http://www.manuallib.com/file/2622439

Click **Apply** to confirm your configuration.

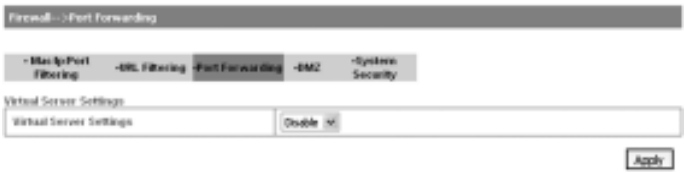
2. URL Filtering

You can setup content filter to restrict the improper content access. Select **Firewall→URL Filtering**, the URL Filtering is shown in the following figure:

Type URL address, and then click **Add** to add the URL address into the filtering list. The new URL filtering item will be shown in the **Current Webs URL Filters:** field.

3. Port Forwarding

You can setup virtual servers to provide services on the Internet. Select **Firewall→Port Forwarding**, the virtual server settings is shown in the following figure:



This Manual: http://www.manuallib.com/file/2622439

If you select **Enable**, the Virtual Server Settings will appear:

- **IP Address**: Set IP address for the virtual server.
- **Port Range**: Set port numbers for the virtual server.
- **Protocol**: Set protocol for the virtual server.
- **Comment**: Type comment for the virtual server settings.

Click **Apply** to confirm your configuration.

4. DMZ

You can setup a De-militarized Zone(DMZ) to separate internal network with the Internet. Select **Firewall→DMZ**, the DMZ setting is shown in the following figure:

This Manual: http://www.manuallib.com/file/2622439

If you select **Enable** , set the DMZ IP address ,and then click **Apply** to confirm your configuration.

5. System Security

You can configure system firewall to protect AP or router from being attacking. Select **Firewall→System Security**, the system security setting is shown in the following figure:

Allow or **Deny** the remote management function and **Enable** or **Disable** ping from WAN filter on requirement, and then click **Apply**.

4.2.7 Advanced

1. Status

Select **Advanced→Status**, the system information is shown in the following figure:

This Manual: http://www.manuallib.com/file/2622439

2. Statistics

Select **Advanced→Statistics**, the system statistics information is shown in the following figure:

3. Management

Select **Advanced→Management**, the administrator settings information is shown in the following figure:

To set new account, type new account and password, and then click **Apply** to confirm your configuration.

4. Upgrade

Select **Advanced→Upgrade** to upgrade the software version of the router.

This Manual: http://www.manuallib.com/file/2622439

Click **Browse...**, locate the latest software version, and then click **Upgrade**.

Note: Do not upgrade software unless necessary. Wrongly upgrade action may cause router malfunction or can not work.

5. Restore

Select **Advanced→Restore**, click **Restore** to set all the settings to their factory default values, and the device will be turned off.

6.Shutdown

Select **Advanced→Shutdown**, click **Shutdown** to turn the router off.

Note: Router is powered off only when the PWR indicator is off. And do not press the power switch during the shutdown process.

7. PIN Manage

Select **Advanced→PIN Manage**, the PIN manage is shown in the following figure:

This Manual: http://www.manuallib.com/file/2622439

If you select **Modify**, the modification parameters are shown in the following figure:

Type the old PIN code, and then type two times the new PIN code. Click **Apply** to confirm your configuration.

Note: Three time consecutive wrong PIN code entries will lock the (U) SIM card.

4.3 Logout

Select **Logout**, a pop-up windows will appear as shown in the following figure :

Click **OK** to logout the router.

4.4 Disconnecting from the Internet

If you want to terminate your Internet connection, you can select **Disconnect Internet** from **WAN Connection** page, and click **Submit**. Turn off the router can also terminate Internet connection.

This Manual: http://www.manuallib.com/file/2622439

5 Troubleshooting

1) Make sure that the router is turned on and all the cables are connected correctly.
2) Check the RSSI, PPP and PWR LED's are lit and NOT in a blinking state or off.

A) Voice Related Problems

Symptoms	Possible Problems/ Solutions
No Dial Tone.	Please wait for 1~2 minutes after the router is turned on. If RSSI is blinking, you have no good RF reception. Change the location of the router.
There is a prompt/ phone alert/ announcement as soon as I lift the phone off the hook.	Make sure your (U)SIM card is inserted correctly and the PIN number has been entered. If the PIN number has been entered incorrectly then you will need to enter the PUK code when prompted.
The line is noisy/ distorted when I lift the phone off the hook.	Remove any electrical appliance which is too close to the phone or router. The cable or phone set might be faulty.
I hear a rapid engaged tone as soon as I lift the phone off the hook.	Put the phone on hook and try again. If you are connected to the internet using the 2G (GSM) network, please disconnect this first.
After dialing the last digit I hear nothing / silence.	When you have finished dialing you can press the # key or wait 4-8 seconds to connect the call.
I can't make or receive a call when I am surfing on the net.	If you are connected using the 2G (GSM) network then you cannot surf the net and make a phone call simultaneously. Please disconnect the internet and wait 30 seconds to 1 minute before making a call.

This Manual: http://www.manuallib.com/file/2622439

B) Internet Related Problems

Symptoms	Possible Problems/ Solutions
I cannot access the internet at all.	Please check your configuration settings. Please wait 1~ 2 minutes for the router to initialize. Check your service indicator LED's.
The download or upload speeds are very slow.	The speed is dependent on signal strength. Check your signal strength and network type.

C) Others

Symptoms	Possible Problems/ Solutions
The RSSI signal indicator is always blinking or does not light.	This indicates poor reception. Try moving the router to another location near the window.

This Manual: http://www.manuallib.com/file/2622439

6 Technical Parameters

- **Network & Frequency Band**:
  EDGE/GPRS/GSM: 850/900/1800/1900MHz
  HSUPA/HSDPA/UMTS: 850/1900/2100MHz
- **LED Display**:
  a. Power Indicator
  b. Wi-Fi Indicator
  c. PPP Indicator
  d. Radio Signal Strength Indicator
- **External Interface**:
  a. External Power Socket
  b. Phone Interface (PHONE)
  c. Data Interface (LAN)
  d. Test Interface (Mini-USB)
- **Power Adapter**:
  Input: 100V~240V (AC), 50/60Hz
  Output: +12V (DC), 1.5A Max
- **Data Service**:
  HSUPA 2Mbps UL
  HSDPA 7.2Mbps DL
- **Dimensions (W×H×D):** 160mm×112mm×32mm
- **Weight**: About 500g

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